

Table of flood stages during January 1938

[All dates in January unless otherwise specified]

| River and station                                  | Flood stage | Above flood stages—dates |         | Crest       |           |
|--|-------------|--------------------------|---------|-------------|-----------|
|  |             | From—                    | To—     | Stage       | Date      |
| ATLANTIC SLOPE DRAINAGE                            |             |                          |         |             |           |
|  | <i>Feet</i> |                          |         | <i>Feet</i> |           |
| Connecticut: Hartford, Conn. ....                  | 16          | 26                       | 28      | 19.6        | 26        |
| Schuylkill: Reading, Pa. ....                      | 7           | 25                       | 26      | 8.0         | 25        |
| Tioughnioga: Whitney Point, N. Y. ....             | 12          | 25                       | 26      | 13.2        | 25        |
| Chenango:  |             |                          |         |             |           |
| Sherburne, N. Y. ....                              | 8           | 25                       | 25      | 8.0         | 25        |
| Greene, N. Y. ....                                 | 8           | 26                       | 26      | 8.0         | 26        |
| Susquehanna:                                       |             |                          |         |             |           |
| Oneonta, N. Y. ....                                | 12          | 25                       | 27      | 15.2        | 25        |
| Bainbridge, N. Y. ....                             | 12          | 25                       | 26      | 12.9        | 26        |
| James: Columbia, Va. ....                          | 10          | 26                       | 28      | 12.4        | 27        |
| Roanoke: Williamston, N. C. ....                   | 10          | 12                       | 16      | 10.2        | 13, 14    |
| Cape Fear: Elizabethtown, N. C. ....               | 20          | 30                       | (1)     | 10.2        | 31        |
| Santee: .....                                      |             | 9                        | 9       | 20.8        | 9         |
|  |             | Dec. 30                  | 1       | 12.8        | Dec. 31   |
| Rimini, S. C. ....                                 | 12          | 6                        | 9       | 12.5        | 8         |
|  |             | 12                       | 15      | 12.6        | 13        |
|  |             | 20                       | 22      | 12.5        | 21        |
|  |             | 28                       | 29      | 12.2        | 28        |
| Ferguson, S. C. ....                               | 12          | 1                        | 1       | 12.0        | 1         |
|  |             | 14                       | 15      | 12.1        | 15        |
|  |             | 22                       | 22      | 12.0        | 22        |
| EAST GULF OF MEXICO DRAINAGE                       |             |                          |         |             |           |
| Tombigbee: Lock No. 3. ....                        | 33          | 2                        | 7       | 35.9        | 5         |
| Pearl: Jackson, Miss. ....                         | 18          | 2                        | 13      | 21.2        | 8         |
| MISSISSIPPI SYSTEM                                 |             |                          |         |             |           |
| Upper Mississippi Basin                            |             |                          |         |             |           |
| Rock: Moline, Ill. ....                            | 10          | 25                       | (1)     | 13.8        | 30        |
| Illinois:  |             |                          |         |             |           |
| Peru, Ill. ....                                    | 17          | 25                       | 25      | 18.1        | 25        |
| Havana, Ill. ....                                  | 14          | 31                       | 31      | 17.0        | 31        |
|  |             | 30                       | (1)     | 15.0        | Feb. 1    |
| Ohio Basin   |             |                          |         |             |           |
| West Fork of White: Anderson, Ind. ....            | 8           | 1                        | 3       | 8.4         | 2         |
|  |             | 25                       | 26      | 8.1         | 26        |
| Cumberland:  |             |                          |         |             |           |
| Celina, Tenn. ....                                 | 28          | 24                       | 26      | 29.8        | 25        |
| Lock No. 6. ....                                   | 35          | 25                       | 27      | 35.8        | 26        |
| Tennessee: Hales Bar Lock, Tenn. (upper gage) .... | 44          | 27                       | 27      | 44.1        | 27        |
| White Basin  |             |                          |         |             |           |
| White:   |             |                          |         |             |           |
| Batesville, Ark. ....                              | 23          | 25                       | 26      | 23.3        | 25        |
| Georgetown, Ark. ....                              | 21          | 30                       | Feb. 7  | 22.3        | Feb. 2    |
| Clarendon, Ark. ....                               | 26          | 29                       | Feb. 13 | 27.7        | Feb. 7    |
| St. Charles, Ark. ....                             | 24          | 29                       | (1)     | 25.9        | Feb. 8-10 |

1 Continued at end of month.

Table of flood stages during January 1938—Continued

| River and station                    | Flood stage | Above flood stages—dates |                  | Crest        |               |
|--------------------------------------|-------------|--------------------------|------------------|--------------|---------------|
|                                      |             | From—                    | To—              | Stage        | Date          |
| Arkansas Basin                       |             |                          |                  |              |               |
| Poteau: Poteau, Okla. ....           | Feet 21     | 22                       | 28               | Feet 31.7    | 25            |
| Petit Jean: Danville, Ark. ....      | 20          | { 22<br>31               | { 29<br>(1)      | 27.1         | 25            |
| Red Basin                            |             |                          |                  |              |               |
| Little Missouri: Boughton, Ark. .... | 20          | 23                       | 27               | 22.9         | 25            |
| Ouachita:                            |             |                          |                  |              |               |
| Arkadelphia, Ark. ....               | 17          | 22                       | 27               | 26.0         | 24            |
| Camden, Ark. ....                    | 26          | 23                       | Feb. 6           | 40.7         | 27            |
| Little: Whitecliffs, Ark. ....       | 25          | 24                       | (1)              | 31.0         | 26            |
| Sulphur:                             |             |                          |                  |              |               |
| Ringo Crossing, Tex. ....            | 20          | { 1<br>21<br>31          | { 1<br>28<br>(1) | 21.8<br>32.0 | 1<br>24       |
| Naples, Tex. ....                    | 22          | { Dec. 22<br>23          | { 8<br>(1)       | 27.7<br>35.0 | Dec. 31<br>25 |
| Cypress: Jefferson, Tex. ....        | 18          | { Dec. 30<br>26          | { 5<br>(1)       | 23.6<br>25.7 | 1<br>27       |
| Red:                                 |             |                          |                  |              |               |
| Index, Ark. ....                     | 25          | 25                       | 27               | 25.8         | 26            |
| Fulton, Ark. ....                    | 25          | 24                       | (1)              | 32.9         | 28            |
| Grand Ecore, La. ....                | 33          | 31                       | (1)              |              |               |
| Alexandria, La. ....                 | 32          | 30                       | (1)              |              |               |
| Lower Mississippi Basin              |             |                          |                  |              |               |
| Big Lake Outlet: Manilla, Ark. ....  | 10          | { Dec. 30<br>26          | { 5<br>(1)       | 10.4         | 1, 2          |
| St. Francis:                         |             |                          |                  |              |               |
| Fisk, Mo. ....                       | 20          | 25                       | 28               | 22.8         | 26            |
| St. Francis, Ark. ....               | 18          | 29                       | (1)              |              |               |
| Tallahatchie: Swan Lake, Miss. ....  | 26          | 28                       | (1)              |              |               |
| WEST GULF OF MEXICO DRAINAGE         |             |                          |                  |              |               |
| Sabine: Logansport, La. ....         | 25          | 13                       | 21               | 27.3         | 17            |
| Elm Fork: Carrollton, Tex. ....      | 6           | 23                       | 25               | 8.1          | 24            |
| Trinity:                             |             |                          |                  |              |               |
| Dallas, Tex. ....                    | 28          | 22                       | 26               | 36.5         | 24            |
| Trinidad, Tex. ....                  | 28          | { Dec. 29<br>23          | { 3<br>(1)       | 31.0<br>39.8 | 25<br>26      |
| Long Lake, Tex. ....                 | 40          | { 5<br>6                 | { 6<br>(1)       | 40.1<br>45.0 | 1<br>26       |
| Liberty, Tex. ....                   | 24          | 12                       | 14               | 24.6         | 13            |
| Grazos: Waco, Tex. ....              | 27          | 24                       | 24               | 30.2         | 24            |
| Buadalupe:                           |             |                          |                  |              |               |
| Gonzales, Tex. ....                  | 20          | 24                       | 26               | 27.6         | 25            |
| Victoria, Tex. ....                  | 21          | 27                       | 28               | 22.7         | 28            |
| PACIFIC SLOPE DRAINAGE               |             |                          |                  |              |               |
| Columbia Basin                       |             |                          |                  |              |               |
| Santiam: Jefferson, Oreg. ....       | 10          | 22                       | 23               | 14.5         | 25            |
| Willamette:                          |             |                          |                  |              |               |
| Harrisburg, Oreg. ....               | 10          | 22                       | 24               | 13.0         | 25            |
| Oregon City, Oreg. ....              | 12          | Dec. 26                  | 3                | 16.3         | Dec. 31       |

1 Continued at end of month.

## WEATHER ON THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, I. R. TANNEHILL in Charge]

## NORTH ATLANTIC OCEAN, JANUARY 1938

By H. C. HUNTER

**Atmospheric pressure.**—The North Atlantic HIGH and the Icelandic low were both unusually well developed during the month. The latter was more intense than usual practically all the time after the first week, and was displaced somewhat to eastward of its average position. The pressures for the month averaged about 0.3 inch less than normal at Reykjavik and at Lerwick.

The North Atlantic HIGH similarly was displaced considerably to eastward. The greatest average excess of pressure, 0.16 inch, is noted at Madeira, though at Horta the average pressure was slightly higher than at Madeira. This HIGH was best developed from the 21st to the end of the month.

Near the American coast, from Labrador to Maine and to eastward beyond the Grand Banks, there was a moderate excess of pressure; while from the vicinity of Cape Cod to the straits of Florida and to eastward far beyond Bermuda the pressure averaged somewhat less than normal.

The extreme pressure readings in the January vessel reports now available are 30.85 and 28.02 inches. The higher reading was observed on the French motor vessel *Pierre L. D.* when in approximately 43° N., 25° W., during the forenoon of the 27th. The lower reading has come from the American steamer *Cliffwood*, which noted it early on the 13th, near 60° N., 12° W. The meteorological station at Lerwick, Shetland Islands, had the same sea level pressure on the 29th, as table 1 indicates.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, January 1938

| Stations                       | Average pressure | Departure   | Highest       | Date   | Lowest        | Date |
|--------------------------------|------------------|-------------|---------------|--------|---------------|------|
|                                | <i>Inches</i>    | <i>Inch</i> | <i>Inches</i> |        | <i>Inches</i> |      |
| Julianehaab, Greenland.....    | 29.28            | -0.15       | 29.96         | 6      | 28.56         | 19   |
| Reykjavik, Iceland.....        | 29.20            | -.26        | 30.18         | 6      | 28.26         | 28   |
| Lerwick, Shetland Islands..... | 29.38            | -.32        | 30.56         | 3      | 28.02         | 29   |
| Valencia, Ireland.....         | 29.89            | -.01        | 30.65         | 1      | 28.82         | 9    |
| Lisbon, Portugal.....          | 30.27            | + .12       | 30.69         | 25     | 29.80         | 14   |
| Madeira.....                   | 30.26            | + .16       | 30.61         | 29     | 29.95         | 2    |
| Horta, Azores.....             | 30.29            | + .13       | 30.80         | 27, 28 | 29.80         | 15   |
| Belle Isle, Newfoundland.....  | 29.87            | + .13       | 30.46         | 2      | 29.30         | 19   |
| Halifax, Nova Scotia.....      | 30.07            | + .09       | 30.58         | 30     | 29.58         | 13   |
| Nantucket.....                 | 30.03            | -.01        | 30.44         | 30     | 29.41         | 13   |
| Hatteras.....                  | 30.08            | -.06        | 30.55         | 29     | 29.38         | 25   |
| Bermuda.....                   | 30.07            | -.09        | 30.54         | 30     | 29.66         | 13   |
| Turks Island.....              | 30.06            | + .03       | 30.19         | 30     | 29.95         | 5    |
| Key West.....                  | 30.09            | -.01        | 30.49         | 28     | 29.58         | 6    |
| New Orleans.....               | 30.13            | .00         | 30.58         | 28     | 29.72         | 24   |

NOTE.—All data based on a. m. observations only, with departures compiled from best available normals related to time of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

**Cyclones and gales.**—With the great Atlantic "centers of action" intensified during most of January, an unusually stormy month naturally resulted. The information available indicates this to be the stormiest, yet, of the present cold season months. Three reports of force-12 winds are at hand and 13 of force-11 winds. The period from 12th to 18th was very stormy and the final few days were stormy over the waters near the British Isles.

An unusual report for the winter season and the latitude of the Tropic of Cancer is that of the *Cathlamet*, which encountered hurricane winds near the forty-first meridian during the night of the 4th-5th. Pressure below 29.5 inches was recorded by this vessel, but the area of low pressure was apparently small. A strong anticyclone was almost directly north of the position, central about 700 miles west of Horta.

Chart IX presents the situation on the 14th, when a large low-pressure system covered the northeast Atlantic. At this time a feature of much importance to the eastern parts of the steamship lanes was the low which was near the Azores on the 13th, and advanced to the British Isles on the 15th. The American steamer *Independence Hall* noted force-12 winds, and winds of nearly that strength were encountered by other vessels in the eastern North Atlantic. The British coastwise freighter *Glanrhyd* was apparently lost with all the crew of 22; and other vessels in British waters lost several men in the aggregate.

At the same time a severe storm was traversing the West Atlantic, from near Cape Hatteras on the evening of the 12th to a position 300 miles south of Cape Race on

the morning of the 14th. The *Steel Traveler*, from the Mediterranean to Boston, met force-12 wind near the fifty-fourth meridian on the 14th; and many other vessels reported severe encounters. The American steamer *Effingham* and the Greek *Aspasia* each lost two men overboard, and each turned from its course to make port for repairs—Bermuda and San Miguel, respectively. From the position to southward of Newfoundland this low continued eastward, with gradual decrease in energy.

About 2 days behind the low just mentioned another energetic low followed nearly the same path till near the Grand Banks, when it turned to a more northerly course and so had little effect on the chief steamship routes to eastward of the thirty-fifth meridian. Chart X indicates the conditions on the 16th.

Another storm of importance was centered over the lower Mississippi Valley late on the 23d, advancing toward the northeast. Several vessels in the northern Gulf of Mexico or near the coast of the South Atlantic States met intense winds in connection with this low, which was followed by a well-developed high, that covered the northwestern Gulf on the 26th and 27th. Unusually strong winds from a northerly quarter were felt in the western Caribbean Sea about the 26th, where at least five lives were lost in the wrecking of comparatively small vessels.

A large-area low of great energy affected the region from near Iceland to the coast of Norway from the 27th to the 30th. In connection with the very high pressure near the Azores and Portugal at this time, the low brought a second period of very stormy weather to the waters around the British Isles. Winds of force 11 were met in the English Channel, and the waters around Scotland probably had gales of at least equal strength. Chart XI indicates the situation of the 28th.

**Fog.**—For the most part, fog was even more infrequent than usual in January. However, one square in the Gulf of Mexico, 25° to 30° N., 90° to 95° W., as in December 1937, reported fog on 7 days, all within the period from the 12th to the 23d, inclusive. A very few scattered reports of fog were received from other northern portions of the Gulf of Mexico and from waters just east of the South Atlantic States.

From Hatteras to the Grand Banks fog was decidedly rare, but almost every 5°-square reported slight amounts, and two squares of the southern Grand Banks area furnished reports of 4 days each. From the eastern Banks to the vicinity of the British Isles there was no fog reported, but to eastward and northeastward of the Azores there was a little, all occurrences here being within the period 11th to 26th, inclusive.